ENVIRONMENTAL PROTECTION AGENCY

Sole Source Aquifer Designation of the Vashon-Maury Island Aquifer System, King County, Washington

AGENCY: Environmental Protection Agency

ACTION: Final Determination

SUMMARY: The Region 10 Administrator of the Environmental Protection Agency (EPA) has determined that the Vashon-Maury Island Aquifer System is a sole or principal source of drinking water, and if contaminated, would create a significant hazard to public health. This action was taken under the authority of Section 1424(e) of the Safe Drinking Water Act in response to a petition submitted to EPA by the Seattle-King County Department of Public Health on April 2, 1992. As a result of this determination, all federal financially-assisted projects proposed in the designated area will be subject to EPA review to ensure that they do not create a significant hazard to public health.

EFFECTIVE DATE: This determination shall be promulgated for purposes of judicial review at 1:00 Eastern time on [insert date two weeks after date of publication in the FEDERAL REGISTER].

ADDRESSES: The information upon which this determination is based is available to the public and may be inspected during normal business hours at the EPA Library, 10th Floor, Park Place Building, 1200 Sixth Avenue, Seattle, Washington, 98101.

FOR FURTHER INFORMATION CONTACT: Scott E. Downey, Environmental Protection Specialist, Ground Water Section, WD-133, U.S. Environmental Protection Agency, Region 10, 1200 Sixth Avenue, Seattle, Washington, 98101, 206-553-0682.

SUPPLEMENTARY INFORMATION: This action is being taken under the authority of Section 1424(e) of the Safe Drinking Water Act (42 United States Code, 300f, 300h-3(e), Public Law 93-523). The information upon which EPA is issuing this final determination has been summarized in the "Support Document for Sole Source Aquifer Designation of the Vashon-Maury Island Aquifer System", EPA 910/K-94-002.

I. Background

Section 1424(e) of the Safe Drinking Water Act states:

> If the Administrator determines, on his own initiative or upon petition, that an area has an aquifer which is the sole or principal drinking water source for the

> area and which, if contaminated, would create a significant hazard to public health, he shall publish notice of that determination in the FEDERAL REGISTER. After the publication of any such notice, no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health, but a commitment for federal assistance may, if authorized under another provision of law, be entered into to plan or design the project to assure that it will not so contaminate the aquifer.

Although EPA has the authority to initiate "sole source aquifer" designations, the Agency has a policy of acting only in response to petitions. Petitions may be submitted to EPA by any individual or organization and must address procedures and criteria outlined in EPA's "Sole Source Aquifer Designation Petitioner Guidance", EPA 440/6-87-003.

On April 2, 1992, EPA Region 10 received a petition from the Seattle-King County Department of Public Health requesting that EPA designate Vashon-Maury Island as a sole source aquifer. The petition was developed in cooperation with the Vashon-Maury Island Ground Water Advisory Committee and the Vashon-Maury Island Water Utilities Coordinating Committee. Recognizing the value of the aquifer as a present and future source of drinking water, the petition was submitted as an additional way to protect the Island's ground water resources.

EPA's initial review of the petition led to a request for additional hydrogeologic and water usage information. This information was subsequently submitted to EPA by the petitioner. On October 21, 1992, the petition was considered complete enough to undergo a more detailed technical review. The technical review was completed in April of 1994 and EPA's findings and basis for the proposed designation were documented in EPA's Support Document.

II. Basis for Determination

The Region 10 Administrator has determined that the Vashon-Maury Island Aquifer System meets all applicable sole source aquifer designation criteria established through Federal statute and EPA guidance documents, as follows:

1) Sole or Principal Source of Drinking Water: Sole source aquifers must supply at least 50 percent of the drinking water to

persons living in the area overlying the aquifer and in areas supplied by the aquifer. The Vashon-Maury Island Aquifer System supplies approximately 71 percent of the drinking water to persons living on the Island.

2) Potential Public Health Hazard: Contamination of the sole source aquifer must create a significant hazard to public health. As the principal drinking water source for the area, contamination of the Vashon-Maury Island Aquifer System would create a significant hazard to public health.

3) Definable Aquifer Boundaries: EPA guidance allows designations to be made for entire aquifers, hydrogeologically connected aquifers (aquifer systems), or part of an aquifer if that portion is hydrogeologically separated from the rest of the aquifer. The Vashon-Maury Aquifer System boundary is based on hydrogeological principles and EPA's interpretation of available data. The Island's hydrogeology is representative of an aquifer system, as data indicate that water from shallow aquifers infiltrates to underlying deeper aquifers. The sole source aquifer boundary is coincident with the shoreline of the Island, and at depth includes all geologic units that can supply significant quantities of drinking water to wells. This boundary is assumed because stratigraphic data are not available to fully map the vertical extent of the aquifer materials.

4) No Alternative Source of Drinking Water: There can be no physical, legal, or economically feasible alternative source(s) of drinking water of sufficient volume that could replace the sole source aquifer, should it become contaminated. EPA has determined that there are no reasonably available alternative source(s) of drinking water that could replace the aquifer.

III. Description of the Vashon-Maury Island Aquifer System

Note: Information in this section represents an unfootnoted summary from EPA's Support Document, EPA 910/K-94-002.

Vashon-Maury Island is located near the southern end of Puget Sound in the southwestern corner of King County, Washington. The Island covers an area of 36.7 square miles and its population has been estimated at approximately 7,800 persons. Recorded data indicates an average rainfall of 46.53 inches.

The aquifer system is composed of both interbedded glacial and non-glacial deposits. In general, the water table elevation reflects the surface topography and the ground water moves radially outward from the interior to the shorelines of the Island.

The uppermost and most recent deposits (Quaternary Vashon unit) are mainly stratified sand and gravel overlying glacial till and sandy gravel interbedded with medium and fine-grained sand. The Vashon unit contains a surficial aquifer comprised primarily of glacial till which has poor water-bearing characteristics, and the uppermost fresh water aquifer (Principal Aquifer) comprised of outwash sand and gravel beds. The Principal Aquifer is found at an elevation of between 0 and 400 feet above mean sea level. Recharge of the Principal Aquifer is probably highest along a north-south corridor of west-central Vashon Island, and is estimated to be approximately 9 million gallons per day. The Principal Aquifer supplies ninety-five percent of the wells located on the Island.

Underlying the Vashon unit are non-glacial deposits (Quaternary Olympia beds) generally consisting of thin-bedded sand and silt with local layers of gravel, massive silt and clayey silt. The Olympia beds serve as a leaky aquitard between the upper Principal Aquifer and the lower Deep Aquifer. The Deep Aquifer underlies the Olympia beds and consists of a variety of interbedded glacial tills, sand and gravel units and laminated silts and clays. The Deep Aquifer is located at an elevation of between about 100 to 300 feet below mean sea level. Recharge to the Deep Aquifer is estimated at between 1.73 and 3.46 million gallons per day.

Ground water quality data was sampled from 72 wells in the aquifer area. In general, deeper wells exhibited higher specific conductance values. Elevated chloride concentrations were found in near-shore wells on the northern and eastern edges of the Island. Ground water quality trend data is limited, but combined water system and spring data indicate that source water nitrate concentrations show a generally increasing trend.

The sand interbeds within the surficial glacial till deposits allow easy infiltration, and although discontinuous, make much of the Principal Aquifer vulnerable to contamination. The Deep Aquifer is also vulnerable to contamination from activities occurring on the land surface, as evidence suggests that it receives recharge from the Principal Aquifer.

Potential sources of contamination include landfill leachate, on-site sewage disposal systems, leaky sewer lines, underground storage tanks, agricultural chemicals, small hazardous waste generators, accidental spills, seawater intrusion, and improper household, forestry and farm practices.

The Island has one publicly-owned water well (the largest

water system on the Island), at least six large private water systems, and more than 100 smaller water systems. Some purveyors use both surface water and ground water to supply their distribution system. In addition, private wells provide water to a considerable number of houses and businesses across the Island. It is estimated that 71% of the water supplied to households on the Island is from ground water and 29% is from surface water sources. There are no alternative sources of drinking water for the Island that can be physically, legally, and economically supplied.

IV. Project Reviews

Designation of a sole source aquifer authorizes EPA to review federal financially-assisted projects proposed within the designated area. The principal mechanism used by EPA Region 10 to identify projects for review are Memorandums of Understanding (MOUs) with federal funding agencies. These MOUs outline procedures for screening and referring projects to EPA in order to ensure that only projects which may have a significant impact to ground water quality are reviewed.

Most projects referred to EPA for review meet all federal, state, and local ground water protection standards and are approved without any additional conditions being imposed. Occasionally, site or project-specific concerns for ground water quality protection lead to specific recommendations or additional pollution prevention requirements as a condition of funding. In rare cases, federal funding has been denied when the applicant has been either unwilling or unable to modify the project.

Whenever feasible, EPA coordinates the review of proposed projects with other offices within EPA and with various federal, state, or local agencies that have a responsibility for ground water quality protection. Relevant information from these sources is given full consideration in the sole source aquifer review process. Such coordination can complement, support, and strengthen existing ground water protection mechanisms.

V. Public Comments

EPA issued a news release (April 12, 1994) and a public notice (April 14, 1994) to request comments and announce the proposed designation. Both stated that a public hearing would be held if sufficient interest were expressed to EPA in advance. No requests for a formal hearing were received and it was subsequently cancelled.

Five written comments were received prior to the expiration of the public comment period on June 1, 1994. Three letters were

from Vashon Island residents and expressed support for the proposed designation. One letter was from the King County Department of Public Works, Roads and Engineering Division, and requested information and coordination of future federal financially-assisted road projects on the Island. Another letter was from the Bureau of Reclamation and stated there were no ongoing or proposed federal financially-assisted projects within the area. No controversial issues were raised as a result of this proposed action.

VI. Summary

This determination affects only the Vashon-Maury Island Aquifer System located in King County, Washington. As a result of this determination, all federal financially-assisted projects proposed in the designated area will be subject to EPA review to ensure that they do not create a significant hazard to public health.

Dated:

_____

Chuck Clarke
Regional Administrator
U.S. Environmental Protection Agency, Region 10.
BILLING CODE 6560-50-P